

New records of *Fulcaldea* (Compositae-Barnadesieae) and the importance of local herbaria for floristic inventory in the tropics

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Abstract

Several new collection records of *Fulcaldea laurifolia* from Ecuador and Peru are presented, showing that the species, and thus the genus, is less rare than previously thought. The study also implies that small local herbaria may play an important role in the exploration of tropical floras.

Introduction

The genus *Fulcaldea* POIR. consists of a single, highly characteristic species, *F. laurifolia* (H. & B.) POIR. ex LESS., endemic to the dry zones of western and southern Ecuador and northern Peru (HARLING 1991, BRAKO & ZARUCCHI 1993). The species forms small, evergreen trees with a well demarcated trunk, a much-branched crown, and coriaceous, 3-veined leaves. The capitula are single-flowered and arranged in dense synflorescences at the end of the branches (Fig. 1). The pappus bristles, which are longer than the corolla, are plumose and have a pale pinkish tinge, giving the synflorescences and indeed the whole flowering tree a pinkish tinge.

Fulcaldea is probably most closely related to *Barnadesia*, a mainly Andean genus of some 25 species. It differs from that genus by its single-flowered capitula and by having the style distinctly swollen below the lobes (Fig. 2), two features unique in the subfamily Barnadesioideae (BREMER 1994). According to BREMER (1994), *Fulcaldea* differs also from *Barnadesia* in having ecaudate anthers (vs. caudate), endothelial tissue with radial thickenings (vs. without thickenings), and in pollen morphology.

For his treatment of *Fulcaldea* for Flora of Ecuador, HARLING (1991) only saw three collections, i.e. the type collected by HUMBOLDT and BONPLAND in the Loja Province in 1802, and two collections from the coastal province of Manabí made in 1893 and 1955. Because of this, HARLING stated that "*Fulcaldea laurifolia* is apparently a rare species". Recent field work has revealed that *F. laurifolia* occurs in great numbers at certain localities, both in the Loja Province (pers. obs.) and in the Machalilla Reserve (C. JOSSE, pers. com.) in the province of Manabí.

Distribution and ecology

Fulcaldea laurifolia is distributed (Fig. 3) in the coastal lowlands of the Manabí Province (50—150 m alt.) and in the uplands of southern Ecuador and northern Peru (650—1850 m alt.). It grows in dry deciduous forests, but at most localities these forests are now degraded because of logging and grazing, the latter mainly by goats and donkeys.

Despite the difference in altitude the disjunct distribution is not unexpected considering the climatic similarity of these two areas. Furthermore, there are many other woody plants occurring in both areas (e.g. *Achatocarpus pubescens*, *Bursera graveolens*, *Ceiba trischistandra*, *Cordia lutea*), although most of these have much larger total distributions.

The species flowers from March through September, typically the driest period of the year.

Collections of *Fulcaldea*

ECUADOR. **Manabí:** Jama, 5 km from Pedernales, 50 m, 80°14'W, 00°10'S, CORNEJO s.n. (GUAY). El Recreo, 80°27'W, 00°29'N, 1897, EGGERS 14944 (GB, K). San Vicente, 1935, ASPLUND 16595 (K, S). Machalilla National Park, Río Piñas, 80° 41' W, 1° 39' S, 150 m, 28 Jul 1994, JOSSE 1063 (AAU, GB). **Loja:** 3-6 km N of Sozoranga on road to Tumbanuma, southern slope above Suquinda stream, 79°47'W, 4°19'S, 1600-1700 m, 18 Sep 1989, MUNDAY & MALDONADO 001 (QCNE). 5 km from Catacocha on road to San Vicente, 79°39'W, 4°6'S, 2000 m, 26 July 1990, JØRGENSEN et al. 92152 (AAU). 5 km from Catacocha on road to Loma Quemada, 79°36'312''W, 4°6'95''S, 1600 m, 16 Apr 1996, LEWIS et al. 2247 (AAU, K, LOJA, QCA, QCNE). Sozoranga outskirts, 1 km along track to Utuaña, 79°47'W, 4°20'S, 1700 m, 5 Mar 1997, LEWIS & LOZANO 3038 (AAU, K, LOJA, QCNE). Km 2 on road Sozoranga-Yaramine, 1750 m, 79°48'W, 4°18'S, 14 June 1997, KLITGAARD, STÅHL et al. 203 (AAU, LOJA, K). Sozoranga, km 4 along track from Sozoranga-Macará road to the El Tundo Reserve, 1850 m, 79°49'W, 4°19'S, 19 Aug 1997, LEWIS et al. 3497 (AAU, K, LOJA, QCA, QCNE). Near Sozoranga on road to Suquinda, 1500 m, 79°48'W, 4°22'S, LOZANO et al. 299 (LOJA). Yamana, 79°40'W, 3°59'S, Aug 1976, VIVAR 871 (LOJA). La Vega Grande, 79°32'25''W, 4°5'16''S, 27 May 1982, VIVAR 1568 (LOJA).

PERU. **Piura:** Prov. Ayabaca, 18 km above Puente Tandopa (Río Quiroz) on road to Ayabaca, 1700 m, 24 Sep 1964, HUTCHISON & WRIGHT 6685 (K, NY). Prov. Huancabamba, La Afiladera, 650 m, 12 Sep 1981, LOPEZ & SAGASTEGUI 8774 (NY).

Vernacular names and uses

The common name for this species in the Loja province is "guayache" ("guallache"), whereas on the coast it is known under the name of "sobretana". The wood is strong and in southern Ecuador the species is used in house construction, especially as roof support, and as fence posts.

Remarks

The present investigation shows that *Fulcaldea laurifolia* is less rare than was previously thought. In fact, it is locally abundant, both near Sozoranga and in the Machalilla Reserve, and is at certain places one of the most common woody species.

The results also have some important implications for tropical floristic inventory in general. Firstly, the importance of local herbaria and locally based collection programmes cannot be underestimated. The LOJA herbarium has grown and developed considerably during the last 10 years and is now a very important resource for botanical investigations in southern Ecuador. The same can be said about the small but quickly growing herbarium in Guayaquil (GUAY), which now houses important collections from the Ecuadorian coast. Secondly, the flowering period of *Fulcaldea laurifolia*, March through September, is no doubt undercollected in general. Most older collections have been made by European and North American botanists visiting the tropics in the northern hemisphere winter time. Local collection programmes unbiased by "winter vacations" will certainly reveal many new records in the future.

Acknowledgement

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References

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Fig. 1. *Fulcaldea laurifolia*.

A habit, flowering branch ($\times 1/6$, LEWIS et al. 3497);
B stem with spines ($\times 1/3$, VIVAR 1568). Del. G. LEWIS.

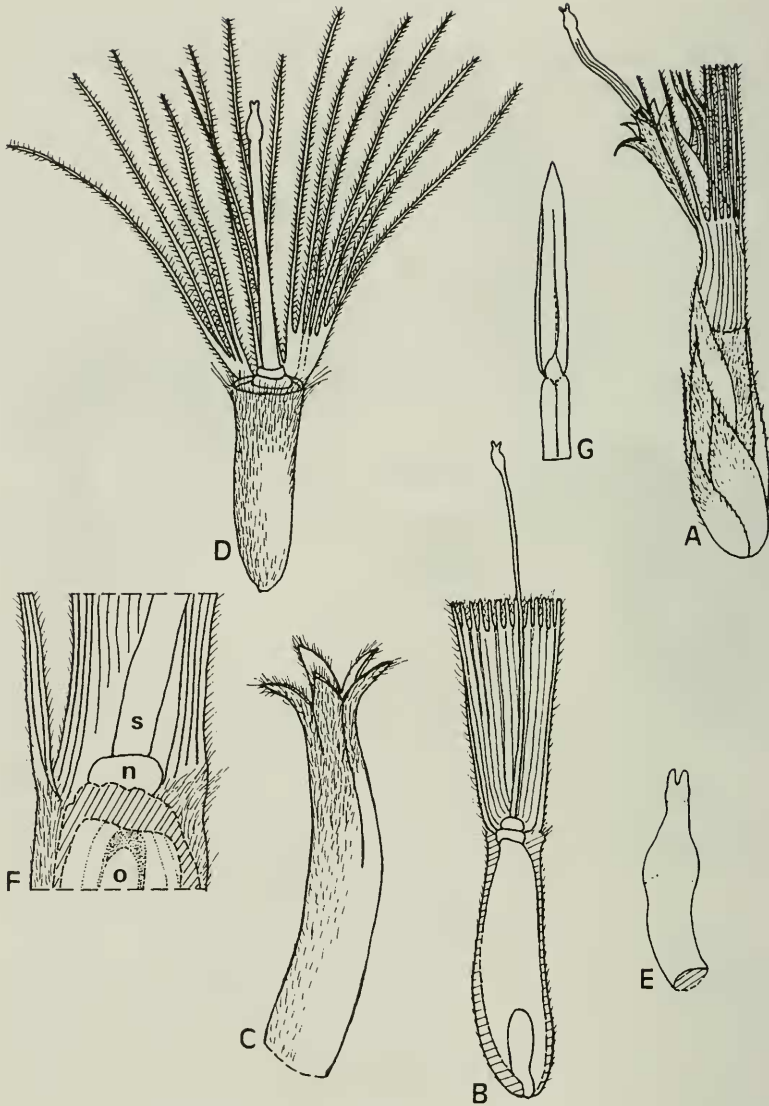


Fig. 2. *Fulcaldea laurifolia*.

A single flower ($\times 2$); B longitudinal section of ovary and pappus ($\times 2.5$); C corolla ($\times 3.25$); D developing achene and pappus ($\times 2$); E style tip and stigma ($\times 10$); F longitudinal section of achene apex ($\times 8.5$; o = ovary, n = nectary, s = style); G anther ($\times 7$). (LEWIS et al. 3497). Del. G. LEWIS.



Fig. 3. Distribution of *Fulcaldea laurifolia*.